APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,436	07/13/2001	John Teloh	SMQ-082/P6396	3431

	EXAMINER
66083 7590 05/24/2007 SUN MICROSYSTEMS, INC. c/o DORSEY & WHITNEY, LLP 370 SEVENTEENTH ST. SUITE 4700 DENVER, CO 80202	WHIPPLE, BRIAN P

ART UNIT	PAPER NUMBER
2152	

MAIL DATE	DELIVERY MODE
05/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	09/905,436	TELOH ET AL.
	Examiner	Art Unit	
	Brian P. Whipple	2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2001*.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-45 are pending in this application and presented for examination.

2.   The amendment received on 4/30/07 has been entered and made of record.

Response to Arguments

3.   Applicant's arguments have been fully considered but they are not persuasive.

4.   Applicant argues that Shakib fails to disclose replicating a data volume to

multiple other ones, and instead discloses broadcasting locally made changes to all

other servers in a replication set. The examiner asserts that two servers in a replication

set (possessing common information) inherently have had the replication set copied

from one server to the other. This is required for both servers to have identical

replication sets. Then from this point on, new locally made changes on one server are

broadcasted periodically to the other server to ensure that identical replication sets are

maintained. Therefore, Shakib does disclose "instruction a first data replication facility at

said first computer to replicate said data volume and to send the replicate to multiple

remote data volumes."

        Additionally, it may be argued that Shakib replicates the data volume when it

broadcasts changes regarding a shared data set. Shakib does not broadcast the entire

replication set every time, because to do so would be pointless. For example, if a first

server had three items in common with a second server, it would be a waste of

communication resources to broadcast all three items to the second server if a change

is only being made to one item. By broadcasting the changes made to the third item, the

first server is ensuring that the two servers have identical replication sets, and thus the

entire replication volume is replicated across the two servers.

See the rejections of claims 1, 7, and 18 below for the citations and reasoning

originally relied upon.

Applicant argues that dependent claims are allowable by the nature of the

allowability of claims 1, 7, and 18, but the examiner has maintained the rejections of

these independent claims.

Applicant argues that Wilson fails to disclose replicating data at a first location

and sending it to a remote location that in turn replicates the data and sends it to

another location. The examiner respectfully disagrees. Wilson discloses a first and

second storage location that each are linked to first and second computers respectively

(Col. 2, ln. 61 – Col. 3, ln. 2). In turn, the examiner cited Wilson (Col. 3, ln. 4-12) as data

is replicated from a second computer to a second storage location and then replicated

to the first storage location. This is in addition to a first computer replicating data to the

first storage location. Thus, each computer replicates data to its storage location and

then each storage location replicates data to ensure that data is stored in multiple

locations. This equates to a first replication facility replicating data to a second

replication facility.

Applicant argues that dependent claims are allowable by the nature of the

allowability of claims 22, 31, and 39, but the examiner has maintained the rejections of

these independent claims.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.   Claims 1, 4, 6-7, 12, 15-18, and 20 are rejected under 35 U.S.C. 102(b) as being

anticipated by Shakib et al. (Shakib), U.S. Patent No. 5,812,793.

7.   As to claim 1, Shakib discloses in a storage network, a method for replicating a

first data volume from a first computer to a plurality of remote data volumes stored on

one or more remote computers (Col. 4, ln. 25-38; a replication data set is a data

volume), said method comprising the steps of:

instructing a first data replication facility at said first computer to replicate said

first data volume and to send the replica to multiple remote data volumes (Col. 4, ln. 25-

38);

in response to the instructing, generating a replica of said first data volume from

said first computer at said first data replication facility (Col. 4, ln. 25-38); and

forwarding said replica from said first data replication facility at said first computer

said to said plurality of remote data volumes stored on said one or more remote

computers (Col. 4, In. 25-38).

8.   As to claims 4, 12, and 20, Shakib discloses said first computer forwards said

replica to said plurality of remote data volumes in an asynchronous manner (Col. 3, In.

20-28).

9.   As to claims 6 and 17, Shakib discloses said first computer and said one or more

computers in said storage network operate without a volume manager facility (Col. 4, In.

25-38; each server tracks and broadcasts a copy of a replication data set without the

use of a volume manager facility).

10.   As to claim 7, Shakib discloses in a computer network having computers,

wherein each of said computers in the network hosts a data replication facility for

remote mirroring of data between said computers (Col. 4, In. 25-38; Col. 6, In. 40-42), a

method comprising the steps of:

        receiving a data volume at said data replication facility of a first of said computers

from said first of said computers for said remote mirroring (Col. 4, In. 25-38); and

        replicating said data volume from said first of said computers to multiple other

ones of the computers (Col. 4, In. 25-38).

11.   As to claim 15, Shakib discloses said computer network comprises one of a local

area network (LAN), a wide area network (WAN), a virtual private network (VPN), an

intranet, an extranet and the Internet (Col. 6, ln. 55-60).

12.   As to claim 16, Shakib discloses said computers comprises one of a server, a

workstation, a "mainframe" and a personal computer (Col. 6, ln. 40-42).

13.   As to claim 18, the claim is rejected for the same reasons as claim 1 above.

Additionally, Shakib discloses a computer readable medium holding computer

executable instructions (Col. 6, ln. 11-16).

14.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

15.   Claims 22-36 and 38-44 are rejected under 35 U.S.C. 102(e) as being

anticipated by Wilson, U.S. Patent No. 6,718,347 B1.

16.   As to claim 22, Wilson discloses in a computer network capable of performing

remote data mirroring from a first network location to one or more remote network

locations, a method of performing said remote data mirroring (Abstract; Fig. 3), said

method comprising the steps of:

replicating data from said first network location to a first remote network location

of said one or more remote network locations (Col. 3, ln. 4-6); and

replicating at said first remote network location of said one or more remote

network locations, said replicated data from said first network location to a second

remote network location of said one or more remote network locations to allow said first

network location to perform said remote data mirroring across multiple remote network

locations (Col. 3, ln. 6-12).

17.   As to claim 23, Wilson discloses said computer network transmission capacity

bandwidth between said first network location and said first remote network location

differs from said computer network transmission bandwidth capacity between said first

remote network location and said second remote network location, wherein said first

remote network location operates as a secondary data repository to said first network

location while operating as an originating location for said remote data mirroring of said

replicated data to said second remote network location (Fig. 3, items 114 and 304; Col.

12, ln. 57-Col. 13, ln. 11; Col. 30, ln. 24-46; a T3 line is used between storage

controllers, while the network cloud accessed by users may be implemented using any

of a number of different options; users replicate data at a speed consistent with their

connection to the network cloud, while storage controllers may transfer the same

replicated data using the T3 line).

18.   As to claim 24, the claim is rejected for the same reasons as claim 23 above.

19.   As to claims 25 and 27, Wilson discloses said first communications manner of

comprises synchronous communications (Col. 10, ln. 12-16).

20.   As to claims 26 and 28, Wilson discloses said first communications manner

comprises asynchronous communications (Col. 9, ln. 61-64).

21.   As to claims 29, 33, and 41, Wilson discloses communications from said first

network location to said one or more remote locations occurs in the Transport Control

Protocol/Internet Protocol (TCP/IP) protocol suite (Col. 32, ln. 27-32 and 39-43).

22.   As to claims 30 and 38, Wilson discloses said first network location and said on

or more network locations operate without a volume manager facility (Col. 8, ln. 45-50;

data replication is carried out automatically by each storage controller without the use of

a volume manager facility).

23.   As to claim 31, Wilson discloses a method for replicating data from a first location

to a plurality of remote locations (Abstract; Fig. 3), said method comprising the steps of:

replicating a selected data structure at said first location (Col. 3, ln. 4-6); and

transmitting said replicated data structure to a first of said plurality of remote

locations for replication of said replicated data structure to a second of said plurality of

remote locations (Col. 3, ln. 6-12).

24.   As to claims 32 and 40, Wilson discloses replicating said replicated data

structure at said first of said plurality of remote locations (Col. 2, ln. 61-Col. 3, ln. 12);

and

transmitting said replication of said replicated data structure to said second of

said plurality of remote locations (Col. 3, ln. 6-12).

25.   As to claims 34 and 42, Wilson discloses said transmission of said replicated

data structure to said first of said plurality of remote locations occurs at a first

transmission rate (Fig. 3, item 114; Col. 30, ln. 24-46).

26.   As to claims 35 and 43, Wilson discloses said transmission of said replication of

said replicated data structure from said first of said plurality of remote locations to said

second of said plurality of remote locations occurs at a second transmission rate (Fig. 3,

items 304; Col. 12, ln. 57-Col. 13, ln. 11).

27.   As to claims 36 and 44, Wilson discloses said first location comprises a

workstation executing a first operating system (Col. 35, ln. 2-12; it is inherent that host

computers accessing a network cloud and sharing data have an operating system).

28.   As to claim 39, the claim is rejected for the same reasons as claim 31 above.

Additionally, Wilson discloses a computer readable medium holding computer

executable instructions (Col. 35, ln. 19-25).

Claim Rejections - 35 USC § 103

29.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

30.   Claims 2-3, 5, 8-11, 13-14, 19, and 21 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Shakib, in view of Wilson.

31.   As to claims 2 and 8, Shakib does not disclose forwarding from said first data

replication facility at said first computer to said one or more computers information

identifying a storage location on a storage device of said one or more computers for

said replica.

However, Wilson does disclose forwarding from said first data replication facility

at said first computer to said one or more computers information identifying a storage

location on a storage device of said one or more computers for said replica (Col. 8, In.

45-50; Col. 32, In. 39-45; Col. 33, In. 1-8).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the teachings of Shakib by forwarding information identifying a

storage location on a storage device as taught by Wilson in order to send a packet that

identifies the destination of the packet (Wilson, Col. 32, In. 39-45).

32.   As to claims 3, 11, and 19, Shakib does not disclose said first computer forwards

said replica to said plurality of remote data volumes in a synchronous manner.

However, Wilson does disclose said first computer forwards said replica to said

plurality of remote data volumes in a synchronous manner (Col. 10, In. 12-16).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the teachings of Shakib by forwarding replicated data in a

synchronous manner as taught by Wilson in order to verify that replication has been

completed successfully at the storage system (Wilson, Col. 10, In. 3-7).

33.   As to claims 5, 10, and 21, Shakib does not disclose said communication

protocol comprises the Transmission Control Protocol/Internet Protocol (TCP/IP)

protocol suite.

However, Wilson does disclose said communication protocol comprises the

Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite (Col. 32, ln. 27-

32 and 39-43).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the teachings of Shakib by using the TCP/IP protocol suite as taught

by Wilson in order to pass information over the Internet (Wilson, Col. 32, ln. 39-43).

34.   As to claim 9, Shakib does not disclose replicating said data volume from said

first of said computers to a plurality of volumes on a second of said computers.

However, Wilson does disclose replicating said data volume from said first of

said computers to a plurality of volumes on a second of said computers (Col. 8, ln. 28-

33).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the teachings of Shakib by replicating a data volume to a plurality of

volumes as taught by Wilson in order to integrate additional storage space into a single

logical volume by adding an additional physical volume into the logical volume.

35.   As to claim 13, Shakib does not disclose said data volume is a logical data

volume.

However, Wilson does disclose said data volume is a logical data volume (Col. 8,

ln. 18-22).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shakib by using a logical data volume as taught by Wilson in order to logically separate physical devices to categorize and isolate data without the need for a separate physical device.

36.   As to claim 14, Shakib does not disclose said data volume is a physical data volume.

However, Wilson does disclose said data volume is a physical data volume (Col. 8, ln. 22-24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shakib by using a physical data volume as taught by Wilson in order to store information in a tangible, central location easily accessible by a user desiring physical access to the data volume.

37.   Claims 37 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson, in view of Nambu, U.S. Patent No. 6,826,665 B1.

38.   As to claims 37 and 45, Wilson does not disclose said first of said plurality of remote locations comprises a server executing a second operating system.

However, Nambu does disclose said first of said plurality of remote locations comprises a server executing a second operating system (Fig. 1, item 13a; Col. 2, ln. 50-52).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the teachings of Wilson by using a second operating system on a

server as taught by Wilson in order to install a preferred operating system, such as the

more secure Unix operating system, on a server without requiring workstations to run

the same operating system.

Conclusion

39.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

40.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Brian P. Whipple whose telephone number is (571) 270-

1244. The examiner can normally be reached on Mon-Fri (8:30 AM to 5:00 PM EST).
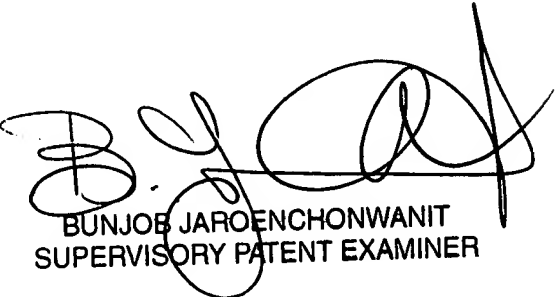
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BPW

Brian P. Whipple
5/21/07

BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER